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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/027,046 | 12/20/2001 | Alexander M. Shukh | S01.12-0851/STL9652 | 2220 |

7590 06/19/2003

PAUL T. DIETZ
WESTMAN CHAMPLIN & KELLY
Suite 1600 - International Center
900 South Second Avenue
Minneapolis, MN 55402-3319

EXAMINER

DAVIS, DAVID DONALD

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2652

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

10/027,046

Applicant(s)

ALEXANDER

Examiner

David D. Davis

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. Receipt is acknowledged of the Information Disclosure Statement (IDS) received March 5, 2002, paper #2.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3, 4, 9 and 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Lairson et al (US 5,822,153). Lairson et al shows in figure 1 perpendicular read/write head 22 for use in a disc drive system to record data to, and read data from, a magnetic medium of a rotating disc. See column 4, lines 32-53. Head 22, as shown in figure 1, shows perpendicular writing element 30 including a main pole 44 and a return pole 42 located downstream of pole 44 relative to rotating disc 41. Return pole 42 is connected to main pole 44 at a back gap. Write

gap 52 is between poles 42 and 44. Conductive coil 46 is between poles 42 and 44 and adapted to induce magnetic flux.

Lairson et al shows in figure 1 a perpendicular read element is upstream element 30 that includes top shield 60 and bottom shield 62 upstream of shield 60. Read sensor 33 is positioned between shields 60 and 62. Non-magnetic layer 67, which is formed of a non-magnetic insulative material, alumina (i.e. aluminous oxide), separates top shield 60 from main pole 44.

5. Claims 10, 13 and 19 are rejected under 35 U.S.C. 102(a) as being anticipated by Applicants Admitted Prior Art (AAPA) as shown in figure 2 and described on pages 5-10. Figure 2 of AAPA shows perpendicular writing element 134 including main pole 144 and return pole 140 located downstream of pole 144 relative to the rotating disc 102. Pole 144 is connected to pole 140 at the back gap. Write gap 146 is between poles 144 and 140. Conductive coil 150 is between poles 144 and 140 to induce magnetic flux.

Perpendicular reading element 136 is "downstream" (Note: it is not defined downstream with respect another object). Reading element 136 includes "top" shield 142 and read sensor 138 positioned between shield 142 and return pole 140, which serves as a "bottom" shield for sensor 138.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 2, 5-8, 11, 12 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lairson et al (US 5,822,153) or Applicants Admitted Prior Art (AAPA) as shown in figure 2 and described on pages 5-10. Lairson et al and AAPA discloses the claimed invention. See description supra. However, they are silent as to the poles material being selected from a group consisting of CoZr, CoZrNb, Ni₄₅Fe₅₅, FeN, FeAlN, CoFe, CoNiFe, NiFe and Fe. The applied prior art is also silent as to a thickness of the non-magnetic layer being approximately 1 micrometer or greater and the gap layer being 1 micrometer or less. The applied prior art is additionally silent as to the non-magnetic layer being formed of a conductive layer sandwiched between insulating layers with the conductive layer being copper, aluminum, tantalum, or tungsten.

Official notice is taken of the fact that poles formed from material being selected from a group consisting of CoZr, CoZrNb, Ni₄₅Fe₅₅, FeN, FeAlN, CoFe, CoNiFe, NiFe and Fe; a thickness of the non-magnetic layer being approximately 1 micrometer or greater and the gap layer being 1 micrometer or less; and a non-magnetic layer being formed of a conductive layer

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sandwiched between insulating layers with the conductive layer being copper, aluminum, tantalum, or tungsten is notoriously old and well known in the magnetic head art.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to specify that the pole of the applied prior art is selected from a group consisting of CoZr, CoZrNb, Ni₄₅Fe₅₅, FeN, FeAlN, CoFe, CoNiFe, NiFe and Fe and specify that a non-magnetic layer of the applied prior art is formed of a conductive layer sandwiched between insulating layers with the conductive layer being copper, aluminum, tantalum, or tungsten as taught in the art. The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to specify that a pole is selected from a group consisting of CoZr, CoZrNb, Ni₄₅Fe₅₅, FeN, FeAlN, CoFe, CoNiFe, NiFe and Fe and specify that a non-magnetic layer is formed of a conductive layer sandwiched between insulating layers with the conductive layer being copper, aluminum, tantalum, or tungsten, which is well within the purview of a skilled artisan and absent an unobvious result, because of the known magnetic properties for the poles and the known conductive properties of the conductive layer.

It also would have been obvious to a person having ordinary skill in the art at the time the invention was made to specify the thickness of the non-magnetic layer and the thickness of the gap layer of the applied prior art to be 1 micrometer or greater and 1 micrometer or less, respectively, as taught in the art. The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to specify the thickness of the non-magnetic layer and the thickness of the gap layer of the applied prior art to be 1 micrometer or greater and 1 micrometer or less, respectively, which is well within the purview of a skilled

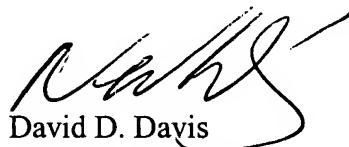
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artisan and absent an unobvious result, so as to optimize the writing of information to the magnetic disc.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Davis whose telephone number is (703) 308-1503. The examiner can normally be reached on Mon., Tues., Thurs. and Fri. between 7:30-6:00. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900. Any other inquiry should be directed to the customer service center whose telephone number is (703) 306-0377.


David D. Davis
Primary Examiner
Art Unit 2652

ddd
June 16, 2003